

BEFORE THE PUBLIC UTILITIES COMMISSION

OF THE STATE OF HAWAII

In the Matter of the Application of)
)
HAWAIIAN ELECTRIC COMPANY, INC.) Docket No. 2016-0328
)
For Approval of General Rate Case and)
Revised Rate Schedules and Rules)
_____)

BLUE PLANET FOUNDATION'S

DIRECT TESTIMONY AND EXHIBIT LIST

DIRECT TESTIMONY OF RONALD J. BINZ

EXHIBIT 1

AND

CERTIFICATE OF SERVICE

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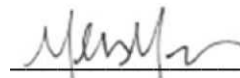
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DATED: Honolulu, Hawai'i, September 22, 2017.

/s/ Isaac H. Moriwake

ISAAC H. MORIWAKE
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MELISSA MIYASHIRO
BLUE PLANET FOUNDATION

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DIRECT TESTIMONY OF RONALD J. BINZ

I. INTRODUCTION

Q. WHAT IS YOUR NAME AND ADDRESS?

A. My name is Ronald J. Binz. My business address is 333 Eudora Street, Denver, Colorado 80220-5721.

Q. ON WHOSE BEHALF ARE YOU TESTIFYING IN THIS CASE?

A. I have been retained by and serve as a professional consultant to Blue Planet Foundation (“Blue Planet”) in this proceeding.

Q. WHAT IS BLUE PLANET’S INTEREST IN THIS CASE?

A. Blue Planet Foundation is a leading Hawai‘i clean energy advocacy organization. Blue Planet has a direct and substantial interest in the outcome of this case and the issues Blue Planet has been admitted into this case to address, which bear on Hawai‘i’s progress toward a clean energy future, in particular Hawai‘i’s achievement of the 100% renewable target established by the Hawai‘i Legislature. While Blue Planet may share some positions with various other parties in this docket, Blue Planet is uniquely situated to

1 advocate policies and regulatory decisions that will accelerate the adoption of clean
2 energy in Hawai‘i.

3 **Q. HAVE YOU TESTIFIED BEFORE THIS COMMISSION PREVIOUSLY?**

4 A. Yes. I submitted written opening and rebuttal testimonies and also testified in person in
5 Docket No. 2015-0022, the HEI-NextEra change of control case. I also filed an affidavit
6 and participated in person in the panel hearing in Docket No. 2013-0141, the
7 “Decoupling Docket.” In each case my testimony was on behalf of Blue Planet
8 Foundation.

9 **Q. WHAT IS YOUR OCCUPATION?**

10 A. I am a Principal with Public Policy Consulting, a firm specializing in energy policy and
11 regulatory matters. I provide consulting services to a variety of public-sector and
12 private-sector clients in the energy industries, primarily in the regulatory arena.

13 **Q. PLEASE DISCUSS YOUR EXPERIENCE AND PROFESSIONAL EXPERTISE.**

14 A. From 1995 to 2006 and from 2011 to the present, I have served as principal of Public
15 Policy Consulting, 333 Eudora Street, Denver, Colorado 80220, consulting on regulation
16 in the energy and telecommunications markets. In the energy area, my focus is on utility
17 regulatory policy, including integrated resource planning, clean technology, smart grid,
18 and climate issues. Also from July 2011 to July 2013, I served as Senior Policy Advisor
19 to the Center for the New Energy Economy at Colorado State University, which provides
20 policymakers, governors, planners, and other decision-makers with a roadmap to
21 accelerate the nationwide development of a New Energy Economy.

1 From 2007 to 2011, I served as Chairman of the Colorado Public Utilities
2 Commission (“Colorado PUC”). In that capacity, I helped implement Colorado’s vision
3 for a “New Energy Economy” and its 30% Renewable Energy Portfolio Standard,
4 participated in the Governor’s Climate Action Plan, streamlined telecommunications
5 regulation, promoted broadband telecommunications investment, and improved the
6 Commission’s operations.

7 As Commission Chair, I presided over implementation of the Colorado Clean Air-
8 Clean Jobs Act, which involved consideration of proposals by major utilities to reduce
9 pollutants from their entire fleets of coal fired power plants in a proceeding with thirty-
10 four legal parties, testimony from sixty-one witnesses, and review of over a dozen
11 contending compliance plans. The Commission’s decision in that case authorized the
12 closure or conversion of nine generating units of XcelEnergy in Colorado.

13 I also presided over the modification and approval of an electric utility resource
14 plan involving the addition of large amounts of new wind capacity, the early closure of
15 two coal power plants to reduce carbon and other emissions, the planned acquisition of
16 200-600 megawatts of solar thermal capacity, and substantial amounts of new energy
17 efficiency savings.

18 Between 1977 and 2017, I have participated in more than 150 regulatory
19 proceedings before the Federal Energy Regulatory Commission (“FERC”), the Federal
20 Communications Commission (“FCC”), state courts, federal district courts, the 8th
21 Circuit, 10th Circuit, and D.C. Circuit Courts of Appeal, the U.S. Supreme Court, and
22 state regulatory commissions in California, Colorado, Georgia, Hawai‘i, Idaho, Maine,

1 Massachusetts, Missouri, New York, North Dakota, South Dakota, Texas, Utah,
2 Wyoming, and the District of Columbia. I have filed testimony in approximately sixty
3 proceedings before these bodies, addressing technical and policy issues in electricity,
4 natural gas, telecommunications, and water regulation.

5 From 1984 to 1995, I served as Director of the Colorado Office of Consumer
6 Counsel, Colorado's first state-funded utility consumer advocate office. During my
7 tenure, the office was a party to more than 200 legal cases before the Colorado PUC,
8 FERC, FCC, and the courts. I negotiated rate settlement agreements with utilities,
9 regularly testified before the Colorado general assembly, and presented to professional
10 business and consumer organizations on utility rate matters.

11 My educational background includes an M.A. degree in Mathematics from the
12 University of Colorado (1977), course requirements met for Ph.D., graduate course work
13 toward an M.A. in Economics from the University of Colorado (1981-1984), and a B.A.
14 with Honors in Philosophy from St. Louis University (1971).

15 Representative professional associations and activities include the Brookings
16 Institution (January 2014-2015); the Harvard Electric Policy Group, John F. Kennedy
17 School, Harvard University (1994-present); the Advisory Council to the Board of the
18 Electric Power Research Institute (2008-2011); the Keystone Energy Board (2009-2011);
19 and the National Association of Regulatory Utility Commissioners (various Committees
20 and the Task Force on Climate Policy, 2007-2011). I also serve on boards of directors of
21 four non-profit organizations.

1 I have authored or co-authored numerous publications on energy and regulatory
2 matters, including “Risk Aware Planning and a New Model for the Utility-Regulator
3 Relationship” (July 2012) and “Practicing Risk-Aware Electricity Regulation: What
4 Every State Regulator Needs to Know” (April 2012) (“Risk-Aware Regulation”).

5 A copy of my professional resume, which includes my employment history,
6 education, Congressional testimony, regulatory testimony, and reports and publications,
7 and professional associations and activities, is attached as Exhibit 1 to this Testimony.

8 **Q. WHAT IS THE FOCUS OF YOUR CURRENT WORK?**

9 A. Since leaving the Colorado PUC in 2011, much of my work has focused on the related
10 topics of “the new utility business model” and “a new regulatory model” that can enable
11 new utility business models to develop in the face of structural changes in the sector that
12 necessitate a change in the business-as-usual approach. These changes include the
13 increased prevalence (and cost-effectiveness) of distributed energy resources, the need to
14 reduce carbon emissions, and the need to mitigate upward rate pressure due to
15 replacement of aging grid infrastructure in the upcoming decades. Relatedly, I led
16 “Utilities 2020,” a 15-month project that brought together regulators and industry leaders
17 to develop and promote thinking about these topics.

18 Utilities 2020 was a “research and action project,” funded by the Energy
19 Foundation, to explore the connected issues of evolving utility business models and
20 changes to state utility regulation needed to enable the evolution of new utility business
21 models. In October 2012, Utilities 2020 hosted a dialogue involving twelve state
22 regulators from across the country, together with senior executives from eight utilities,

consumer advocates, and other experts in energy and regulation. The public version of the Utilities 2020 report can be found at <http://www.rbinz.com/U2020PublicReport.pdf>

II. SUMMARY OF FINDINGS AND RECOMMENDATIONS

Q. WHAT ISSUES ARE YOU ADDRESSING IN THIS TESTIMONY?

A. Blue Planet was admitted to this case as a participant with the ability to address three issues in this case:

4. Whether HECO's proposed tariffs, rates, charges, and rules are just and reasonable; including, but not limited to:

* * *

c. Are the proposed revisions to the Energy Cost Adjustment Clause ("ECAC") tariff just and reasonable?

d. What changes should be made to separate and remove all test year fuel and purchased energy expenses from base rates, with recovery of these costs to be accomplished through an appropriately modified energy cost adjustment mechanism?

e. Are the proposed revisions to the Rate Adjustment Mechanism ("RAM") just and reasonable?

Procedural Order No. 34721, filed on July 28, 2017, at 6, 8.

Blue Planet has asked me to respond to Issues 4(c) and 4(e).

Q. WHAT DOCUMENTS DID YOU REVIEW IN PREPARING THIS TESTIMONY?

A. I reviewed HECO's application, the orders and pleadings in this case, and the relevant testimony filed by the HECO witnesses with the application. I also reviewed the relevant responses by HECO to information requests. Finally, I reviewed prior Commission orders and Hawai'i statutes addressing the ECAC and RAM.

1 **Q. PLEASE SUMMARIZE YOUR FINDINGS AND RECOMMENDATIONS IN THIS CASE.**

2 A. On behalf of Blue Planet, I offer four findings and recommendations for the
3 Commission’s consideration in this case:

- 4 1. The Commission should modify the ECAC to fairly share the risk between
5 customers and HECO, giving HECO “skin in the game” with respect to
6 managing fossil fuel use and costs and moving to renewable energy. I present
7 several potential methods that can be adopted either singly or in combination.
- 8 2. In addition to modifying the ECAC to share the risk, the Commission should
9 also adopt a mechanism under which the ECAC for fossil fuels would be
10 phased down over 25 years, by 2042.
- 11 3. The Commission should eliminate the heat rate adjustment in the ECAC.
12 While such an adjustment was undoubtedly useful at one time, the incentives
13 it provides are not consistent with a move toward deep penetration of variable
14 generation like solar and wind.
- 15 4. Blue Planet does not take a position at this time on HECO’s proposal to
16 modify the RAM. However, it is important to resolve the issue raised by
17 HECO since all Performance-Based Regulation plans deal with the same
18 issue: determining how to handle above-revenue cap costs.

19 **III. ISSUE BACKGROUND**

20 **Q. IN ITS PROCEDURAL ORDER, THE COMMISSION ASKS WHETHER HECO’S ECAC**
21 **PROPOSAL IN THIS CASE IS JUST AND REASONABLE. WHAT GUIDANCE HAS THE**
22 **COMMISSION AND THE LEGISLATURE PROVIDED IN THE PAST ABOUT THE PURPOSE AND**
23 **DESIGN OF THE ECAC?**

24 A. The Commission is undoubtedly familiar with this past guidance, but it may be helpful to
25 review it all at once.

26 In its “Inclinations” white paper, the Commission emphasized that “the current
27 cost-recovery model for the HECO Companies may be increasingly at odds with major

1 public policy goals to reduce electric rates and increase renewable energy utilization.”

2 Order No. 32052, Ex. A, at 21, filed on April 28, 2014 in Docket No. 2012-0036

3 (“Commission’s Inclinations”). As one of the prime examples, the Commission raised

4 the shortcomings of the ECAC:

5 *Lack of correct incentives to control power supply costs* – Under the cost
6 pass-through structure of the ECAC mechanism, the HECO Companies
7 have no direct financial incentive—reward or penalty— to stabilize and
8 reduce power supply fuel costs, minimize curtailment of low-cost
9 renewable energy, or maximize use of cost-effective renewable energy
10 sources. Simply stated, the utility is insulated and has no direct financial
11 “skin in the game” as to whether fuel costs, and by extension, the ECAC
12 surcharges increase or decrease. Yet, this is the single largest category of
13 utility costs.

14 *Id.* at 23. The Commission further noted that “[i]n spite of the fact that fuel
15 expenses constitute the single largest expense category for each of the HECO
16 Companies, the ECAC mechanism has not received a high level of regulatory
17 scrutiny in the past.” *Id.* at 22 n.26. The Commission also acknowledged the
18 existing heat rate incentive in the ECAC, but pointed out that the “small” gains
19 and losses resulting from that incentive “have paled in comparison to rate
20 increases experienced by customers due to increases in oil prices.” *Id.* at 22 n.27.

21 The Commission subsequently considered a variety of proposals for modifications
22 to the ECAC in the Decoupling Docket, Docket No. 2013-0141. In Order No. 32735,
23 filed on March 31, 2015, the Commission determined that the record was “not sufficient
24 to make major changes to the ECAC mechanisms in this Order.” *Id.* at 112. At the same
25 time, the Commission found that some of the proposals in that proceeding “may have
26 potential merit.” *Id.* The Commission stated that it “intend[ed] to further investigate

1 possible changes to the ECAC in this [Decoupling Docket]” and ordered the parties to
2 brief the “appropriate steps, processes, and timing to further consider the merits” of the
3 proposals. *Id.*

4 The Commission next considered the ECAC issues in Order No. 34514, filed on
5 April 17, 2017 in the Decoupling Docket. The Commission determined that it “will not
6 establish further procedural steps in this [Decoupling Docket] and will not, at this time,
7 initiate a separate docket to consider changes to the HECO Companies’ ECAC
8 mechanisms.” *Id.* at 85. The Commission nonetheless made clear that it

9 does intend to require modifications to the ECAC mechanisms that will
10 provide clear and appropriate incentives for the Companies to diligently
11 achieve Hawaii’s energy policy goals at the most affordable cost. The
12 commission will consider ECAC amendments and related PIMs that: 1)
13 establish incentives for exemplary performance by the Companies to
14 reduce fossil fuel generation; 2) control operating expenses, and
15 effectively manage capital expenditures and new power purchase
16 obligations; and 3) provide for earnings opportunities from shared cost
17 savings resulting from exemplary performance and services, in addition to
18 or as an alternative to earnings limited to return on capital investments.

19 *Id.* at 86.

20 The Commission indicated it would “take up the issues regarding changes to the
21 ECAC mechanisms identified in this [Decoupling Docket], including consideration of
22 incentives to control fuel and power purchased costs, in each Company’s pending or next
23 general rate case, and/or any separate docket initiated by the commission to consider
24 implementation of PBR or further stand-alone PIMs for the HECO Companies.”

25 In Order No. 34514, the Commission also signaled that, in the pending or coming
26 rate cases, it would consider certain changes to establish a process to reset the ECAC heat
27 rate mechanism, and also that it intended to make a discrete change to the ECAC,

1 removing fuel expenses from base rates and rolling base fuel costs into an “appropriately
2 modified” ECAC. *See id.* at 86-87, 120.

3 In Order No. 34664, filed on June 28, 2017 in the instant docket, the Commission
4 determined to allow discussion of the proposed changes to the ECAC in this proceeding:

5 [T]he commission is inclined to allow discussion on HECO’s proposed
6 changes to the RAM and ECAC in this proceeding. In contrast to the PBR
7 and DER PIM issues, which may require the creation of entirely new
8 tariffs, both the RAM and ECAC are existing tariffs to which limited
9 changes are proposed. In its Application, HECO has proposed specific
10 changes to both tariffs which mirror the considerations that were raised in
11 the Decoupling Docket (i.e., proposals relating to recovery of revenues
12 above the RAM Cap and changes to the ECAC to modify the heat rates
13 and/or deadbands). Regarding the ECAC, the commission specifically
14 declined to establish further procedural steps or open a separate
15 investigative docket in the Decoupling Docket, but referred to the general
16 rate cases as the appropriate forum in which to discuss changes to the
17 ECAC.

18 *Id.* at 27. The scope of the ECAC review was described in Procedural Order No.
19 34721, filed on July 28, 2017 in this case: “Are the proposed revisions to the
20 [ECAC] tariff just and reasonable?” *Id.* at 6.

21 The Hawai‘i Legislature has also addressed aspects of fuel rate adjustments, both
22 directly and indirectly. In 2006, the legislature passed Act 162 (HB No. 3185), codified
23 as Hawai‘i Revised Statutes (“HRS”) § 269-16(g):

24 (g) Any automatic fuel rate adjustment clause requested by a public utility
25 in an application filed with the commission shall be designed, as
26 determined in the commission’s discretion, to:

27 (1) Fairly share the risk of fuel cost changes between the public utility and
28 its customers;

1 (2) Provide the public utility with sufficient incentive to reasonably
2 manage or lower its fuel costs and encourage greater use of renewable
3 energy;

4 (3) Allow the public utility to mitigate the risk of sudden or frequent fuel
5 cost changes that cannot otherwise reasonably be mitigated through other
6 commercially available means, such as through fuel hedging contracts;

7 (4) Preserve, to the extent reasonably possible, the public utility's financial
8 integrity; and

9 (5) Minimize, to the extent reasonably possible, the public utility's need to
10 apply for frequent applications for general rate increases to account for the
11 changes to its fuel costs.

12 In 2013, the Legislature passed Act 37, codified in HRS § 269-6(d), which
13 provides that the Commission, "shall consider whether the implementation of one or
14 more of the following economic incentives or cost recovery mechanisms would be in the
15 public interest," including: "(1) The establishment of a shared cost savings incentive
16 mechanism designed to induce a public utility to reduce energy costs and operating costs
17 and accelerate the implementation of energy cost reduction practices."

18 As another provision in the Commission's "General powers and duties," the
19 Legislature has mandated that the Commission "shall consider the need to reduce the
20 State's reliance on fossil fuels through energy efficiency and increased renewable energy
21 generation" and "[i]n making determinations of the reasonableness of the costs of utility
22 system capital improvements and operations, . . . shall explicitly consider, quantitatively
23 or qualitatively, the effect of the State's reliance on fossil fuels on price volatility, export
24 of funds for fuel imports, fuel supply reliability risk, and greenhouse gas emissions."
25 HRS § 269-6(b).

1 Finally, the Legislature passed HB No. 623 that amended HRS § 269-92 to
2 require Hawai'i electric utility companies to adopt and attain a renewable portfolio
3 standard of 100% renewable energy by 2045. The new law was signed into law by
4 Governor Ige and became effective on July 1, 2015. As discussed below, the 100% RPS
5 requirement has important implications for the design of the ECAC.

6 **IV. DISCUSSION OF FINDINGS AND RECOMMENDATIONS**

7 **Q. HOW WOULD YOU SUMMARIZE THE GUIDANCE PROVIDED BY THE COMMISSION AND**
8 **THE LEGISLATURE?**

9 A. Of course, the Inclinations, orders, and laws speak for themselves. However, I believe it
10 is fair to summarize their guidance in four statements:

- 11 • **Risk Sharing:** HECO's fuel adjustment mechanism must fairly share the
12 risk of fuel price increases between HECO and its customers;
- 13 • **Manage Costs:** HECO's fuel adjustment mechanism must provide the
14 utility with incentives to manage and lower its fuel costs;
- 15 • **Use Renewables:** HECO's fuel adjustment mechanism must encourage the
16 greater use of renewable energy;
- 17 • **Other Goals:** HECO's fuel adjustment mechanism should accomplish
18 other related regulatory goals: e.g., mitigate sudden price changes, preserve
19 the utility's financial integrity, and avoid frequent rate cases.

20 **Q. HOW WELL DOES THE CURRENT ECAC MECHANISM SERVE THESE GOALS?**

21 A. Table 1 on the following page summarizes my estimate of how well the current ECAC
22 serves each of the four goals listed above. Bottom line, I believe that the ECAC falls far
23 short of the fuel cost adjustment goals envisioned by the Commission and the Hawai'i
24 Legislature.

Table 1 - Testing HECO ECAC Against Commission and Legislative Goals

Purpose	Result	Comment
Risk Sharing	ECAC fails.	There is no risk sharing. Unless a fuel purchase is deemed imprudent after-the-fact, the ECAC ensures that HECO is reimbursed for 100% of any changes in fuel costs. The risk of changes in fuel costs is borne entirely by customers. (The only exception is the heat rate adjustment that might lead to very small rewards or penalties, if at all.)
Manage Costs	ECAC mostly fails	Nothing has changed since the Commission found that the utility has no “skin in the game” and lacks financial incentives to control the fuel costs recovered in the ECAC. The only relevant incentive is the heat rate adjustment that arguably provides an incentive to operate plants efficiently. However, the heat rate adjustment may also collide with other goals such as the growth of renewable resources.
Use Renewables	ECAC fails	The ECAC does not promote renewables use. Instead, it enables the expeditious recovery of fossil fuel costs, masking the danger to the climate of burning fossil fuels. Moreover, the incentive provided by the heat rate adjustment may be conflict with flexible system operations that are required to accommodate a deep penetration of variable generation like wind and solar power.
Other Goals	ECAC partially succeeds	
• <i>Avoid rate cases</i>	ECAC succeeds.	The ECAC helps avoid rate cases by eliminating the possibility that changing fuel costs could trigger the need for a rate case.
• <i>Maintain Utility Financial Integrity</i>	ECAC succeeds.	The ECAC undoubtedly insulates HECO from risk, thereby preserving the utility’s financial health.
• <i>Mitigate sudden cost changes</i>	ECAC fails.	The ECAC does not mitigate the impact of price swings in fuel costs. The full effect of price swings is passed through in rates and thus simply shifted to customers. Moreover, the existence of the ECAC does not lessen the likelihood of large changes in prices.

1 **Q. PLEASE EXPLAIN WHY THE CURRENT ECAC FAILS TO SERVE THE COMMISSION AND**
2 **LEGISLATIVE GOAL OF SHARING FUEL RISK BETWEEN THE UTILITY AND CONSUMERS.**

3 A. The current form of the ECAC contains no mechanism for sharing risk. If prices move
4 up or down, the ECAC passes that change straight through to customers in rates; the
5 utility has virtually no risk of non-recovery. Further, the ECAC eliminates most of the
6 delay between cost incurrence and changes in rates, eliminating any risk of loss of the
7 time value of money. Without a fuel adjustment mechanism, changes in fuel costs would
8 be absorbed by the utility until base rates were changed.

9 **Q. PLEASE EXPLAIN WHY THE ECAC FAILS TO SERVE THE COMMISSION AND**
10 **LEGISLATIVE GOAL OF GIVING UTILITIES A FINANCIAL INCENTIVE TO CONTROL FUEL**
11 **COSTS.**

12 A. As commonly used, “cost recovery mechanism” refers to a ratemaking practice that pulls
13 out certain matching revenues and expenses from the general rate case and isolates them
14 in a special mechanism that “automatically” tracks the changes in costs and revenues for
15 that item. Cost recovery mechanisms protect the utility from exposure to increasing
16 prices for the relevant commodity (fuel, purchased power, pension expenses, etc.) but
17 also deny the utility the upside of increased earnings when the costs decline. Importantly,
18 cost recovery mechanisms deny the utility a reward for superior performance or a penalty
19 for inferior performance. Cost recovery mechanisms are usually designed to be “trued
20 up,” so that the utility recovers precisely the changes in cost: no more and no less.

21 Because of the “automatic” character of a cost recovery mechanism like the
22 ECAC, its use extinguishes the only meaningful incentive toward efficiency that cost-of-

1 service regulation offers. When the costs and revenues associated with an item are
2 embedded in a utility's base rates, the utility is challenged, between rate cases, to find
3 ways to be more efficient to offset pressures on earnings caused by any net increases in
4 costs for the item. Under the original cost-of-service model, there was a lag between
5 changes in costs (up or down) and changes in allowed revenues. Beginning in the 1970s,
6 this original cost of service model has been progressively modified over many years, with
7 the result that regulatory lag has mostly been removed from the ratemaking process. But
8 when regulatory lag was eliminated, efficiency incentives were jettisoned, and risks were
9 shifted onto customers.

10 Moreover, cost recovery mechanisms like the ECAC have effects in addition to
11 eliminating incentives toward efficiency. As I explain in my Risk-Aware Regulation
12 paper, such risk-shifting mechanisms also can create a perverse incentive or "moral
13 hazard" for the utility to ignore risks and broader and longer-term financial consequences
14 to customers and even the utility itself. The Consumer Advocate acknowledged this flaw
15 in the previous discussions in the Decoupling Docket, explaining that "[t]he favorable
16 cost-recovery treatment afforded changes in [fuel and purchased power costs] insulate the
17 utility from otherwise significant risks of non-recovery, creating a potential bias in
18 strategic planning in favor of resource plans that result in costs that are ECAC/PPAC
19 recoverable." Consumer Advocate's Initial Statement of Position, filed on May 20, 2014
20 in Docket No. 2013-0141, at 45. This arrangement has also been cogently summed up as
21 "gambling with other people's money." Yet, as stated above, the risks can extend beyond
22 customers and also harm the utility and its shareholders. As I explain in Risk-Aware
23 Regulation: "If negative consequences of such risky decisions extended beyond

1 customers and reached investors, the resulting losses would be partially attributable to the
2 same risk-shifting mechanisms that analysts and investors originally perceived as
3 beneficial.” *Id.* at 44.

4 **Q. PLEASE EXPLAIN WHY YOU BELIEVE THE ECAC FAILS TO ENCOURAGE MORE USE OF**
5 **RENEWABLE ENERGY.**

6 A. Hawai‘i has committed to achieving 100% renewable energy by 2045, putting the state in
7 a clean energy and climate leadership position in the world. The HECO Companies have
8 proposed a Power Supply Improvement Plan (“PSIP”) that indicates it can meet that goal
9 five years early, by 2040. It stands to reason that the Commission should be sure that its
10 regulatory practices fully support movement toward the 100% goal.

11 The ECAC has no provisions that specifically encourage HECO to use more
12 renewable energy. The ECAC simply makes the acquisition of fossil fuels much less
13 risky for the utility. In fact, it could be argued that fuel adjustment clauses that mask the
14 fuel cost volatility, energy independence and security, environmental and climate, and
15 other problems of burning fossil fuels have *slowed* the emergence of renewable energy
16 use in many parts of the country – and probably more in Hawai‘i than anywhere else.

17 Moreover, the ECAC may subtly *discourage* the fastest sustainable growth in the
18 use of renewable energy through the ECAC’s heat rate adjustment. The Commission
19 added the heat rate adjustment as a feature of the ECAC for the best of reasons: to
20 encourage the HECO Companies to run their fossil fueled plants as efficiently as
21 possible, minimizing the amount of fuel burned to create a kilowatt-hour of electricity.
22 The heat rate adjustment provided an incentive: once a baseline heat rate is established,

1 the Companies can increase earnings by beating the baseline, i.e., by producing more
2 power per MMBTU of fuel than the value assumed in the baseline.

3 Many of the potential approaches to heat rate improvement require capital
4 investments and will not influence the short-run performance of plants monitored by the
5 ECAC. Other strategies relate to operations and maintenance: for example, careful
6 adherence to plant maintenance schedules and training of operating staff about heat rate
7 issues will improve plant performance. But the chief way to lower the heat rate of a plant
8 in the short run is by increasing its availability and its load factor.

9 This means that the “heat rate” incentive in the ECAC might work in opposition
10 to the Commission’s desire that the HECO Companies shift toward more renewable
11 energy and lessen the curtailment of renewable resources. Incentivizing the lowest
12 possible heat rate (highest plant efficiency) at a fossil-fueled power plant creates an
13 incentive to use the plants to the greatest extent possible. Decreasing the output of a
14 fossil plant to make room for renewable generation might cost the HECO Companies
15 money through the ECAC heat rate incentive. I will return to this topic later in this
16 testimony.

17 **Q. PLEASE COMMENT ON THE “OTHER GOALS” LISTED IN TABLE 1 ABOVE.**

18 A. I have lumped together three other goals that are highlighted either in Commission orders
19 or in legislation. The first is reducing the frequency with which a utility files general rate
20 cases. Obviously, the ECAC has that effect, since fuel adjustment clauses were created
21 in the 1970s mainly with that goal in mind. By moving changes in fuel expense from
22 base rates into an “automatic” cost adjustment that tracks changes in fuel costs and sales

1 volumes, clauses like the ECAC eliminate one of the largest components of rates from
2 general rate cases. As the Commission observed, fuel costs often account for 60-65% of
3 the total cost of service for the HECO Companies. Commission's Inclinations at 22.

4 On the next count, maintaining the utility's financial integrity, the ECAC
5 succeeds completely. When 60-65% of the total cost of service is put on "autopilot,"
6 investors can be confident that the utility will be made whole on fuel costs, regardless of
7 input prices and almost regardless of performance.

8 **Q. MR. BINZ, DO YOU BELIEVE THAT THE CHANGES HECO PROPOSES FOR THE ECAC ARE**
9 **JUST AND REASONABLE?**

10 A. No. In my professional opinion and judgment, the limited changes to the ECAC HECO
11 proposed in their application in this rate case are *not* just and reasonable from a
12 comprehensive perspective that includes the Commission's Inclinations and related
13 orders, the Legislature's enactments, and the extensive discussions on the ECAC that
14 have occurred since the Decoupling Docket. As I have explained, the Company's ECAC
15 falls very short of the model for a fuel cost adjustment mechanism contemplated by the
16 Commission in its Inclinations and orders or the Legislature in its laws. The changes
17 proposed by HECO might improve the ECAC marginally, but still leave it defective in
18 many key respects. The ECAC explicitly does not share risk between customers and the
19 Company; does not contain meaningful incentives to manage and control fuel costs; and
20 does not promote the use of renewable energy.

21 **Q. HOW COULD THE ECAC BE MODIFIED TO GIVE HECO SOME "SKIN IN THE GAME," AS**
22 **EXPRESSED IN THE COMMISSION'S INCLINATIONS?**

1 A. There are at least three options for modifying the incentives within the ECAC while
2 retaining its desirable characteristics. Each of these modifications is designed to give the
3 utility some “skin in the game,” as the Commission expressed in its Inclinations. Blue
4 Planet also notes that these ECAC modifications, while an important step in realigning
5 utility incentives, are not a substitute for needed comprehensive regulatory reform along
6 the lines Blue Planet recommended in the Decoupling Docket. Only a fundamental
7 reform of regulation can fully incentivize the utility effectively to transition away from
8 relying on volatile and costly imported fossil fuels.

9 First, (Option A) the ECAC could be modified to pass through only part of the
10 increases and decreases of fuel costs. This change would mean that some of the risk of
11 increases in fuel costs is split between utilities and consumers. For example, the ECAC
12 could pass through 90% of the variation in fuel costs compared to a base rate level. If
13 fuel prices increase 10% above the baseline, the utility would be compensated for 90% of
14 that increase (9%) and absorb 10% of the increase (1%). Similarly, if fuel costs dropped
15 by 15% compared to the base level, the utility would benefit by retaining 10% (1.5%) of
16 the reduction and consumers would receive 90% of the reduction (13.5%). Importantly,
17 this does not mean that the utility is denied recovery of the fuel expense *per se*. Only
18 *changes* in the fuel cost relative to some baseline are split between customer and the
19 utility.

20 Variations on Option A are used Idaho, Missouri, Montana, Oregon, Utah,
21 Vermont, Washington, and Wyoming.

1 The second potential modification (Option B) would be to pass through only those
2 increases or decreases that exceed a certain threshold. For example, the ECAC could be
3 designed to pass through all the variation in costs from the baseline outside a +/- 5%
4 range. Under this arrangement, the utility would be responsible for all ups and downs in
5 costs within the band, and would be insulated from any larger changes in costs. This
6 concept is already familiar to the Commission within the ECAC: there is a deadband for
7 the ECAC heat rate adjustment. Variations on Option B are used in Oregon and
8 Washington.

9 Each of these first two options has its advantages. The first ensures that the utility
10 faces an incentive over the entire range of fuel prices as they diverge from a baseline. The
11 incentive (both positive and negative) is a certain percentage of the deviation in costs
12 from a baseline. The second method exposes the utility to a larger incentive (a
13 percentage of the entire deviation, positive and negative) but over a smaller interval of
14 variation – the interval outside the deadband.

15 The Washington Utilities and Transportation Commission (“WUTC”), for
16 example, adopted a Power Cost Adjustment mechanism that combines these two methods
17 (Option A+B). On an annual basis, Puget Sound Energy revenues are adjusted to reflect
18 the following (annual) total adjustments: the utility absorbs net cost changes (up and
19 down) within a ±\$20 million deadband. (As a side note, the mechanism originally
20 covered total power costs, including fuel costs as well as fixed generation costs, but fixed
21 costs are currently proposed to be removed from the mechanism.) Responsibility for
22 cost changes outside the deadband are split between customers and the utility in a
23 succession of “sharing percentages” within various “sharing bands.” The second band of

1 ±\$20-40 million is 50/50 sharing; the third band of ±\$40-120 million is 90% to the
2 customers and 10% to the utility; and the fourth band of greater than ±\$120 million is
3 95% to the customers and 5% to the utility. Also, during an initial four-year period after
4 adoption, the sharing mechanism was capped at the ±\$40 million level, above which the
5 sharing percentage was 99% to customers and 1% to the utility. These sharing
6 percentages were set in consideration of the resulting total risk exposure for the utility.
7 The deadband and sharing bands are applied annually to test the total compensation made
8 to the utility.

9 **Q. WHAT IS THE THIRD WAY IN WHICH THE RISK IN FOSSIL FUEL RECOVERY COULD BE**
10 **SHARED BETWEEN HECO AND ITS CUSTOMERS?**

11 A. I explained earlier that any cost recovery mechanism that enables the accelerated
12 recovery of changes in fossil fuel costs masks the economic, societal, environmental, and
13 climate harms of using fossil fuels. A 100% “automatic” pass-through of fossil fuel costs
14 is “better” for the utility than the treatment of many other utility costs. There is no
15 recognition that the renewable energy costs are preferable to fossil fuels from a cost
16 recovery perspective.

17 The first two options and the WUTC variant described above affects the risk of
18 fuel cost recovery *now*. The third method affects the recovery of fossil fuel costs over the
19 *longer term*. The first two options are more tactical; the third option is a more strategic
20 approach by the Commission.

21 If the Commission wants to provide a strong incentive over coming years that is
22 aligned with Hawai‘i’s mandates and HECO’s plans to shift from fossil fuels to clean

1 energy, it should consider phasing out the ECAC over 25 years (2017-2042) in a way that
2 doesn't penalize HECO if the Company continues expeditiously to reduce dependence on
3 fossil fuels. Fossil fuel costs would continue to be an allowable expense, but the ability
4 of the utility to shift fuel cost risk to customers through the ECAC would be
5 progressively diminished. This would further reinforce and incentivize the move to
6 resources with lower fuel cost and risk, such as renewables. In effect, just as the state of
7 Hawai'i has committed to moving away from fossil fuels to avoid the longer-term
8 economic, societal, environmental, and climate costs and risks, HECO would likewise be
9 strategically motivated over the longer term to avoid the financial costs and risks of fossil
10 fuel reliance.

11 Specifically, the Commission should consider setting in motion a process in
12 which the ECAC would cover only a declining amount of fossil fuels. The "amount of
13 fossil fuels" could be measured in MBtu, MWh generated, or barrels of oil. Here is an
14 example of how such a phase-down would be implemented. In this illustration, the
15 adjustment will apply to all BTUs associated with fossil fuel use for generation by the
16 Company.

17 We establish a baseline maximum of 57,000,000 BTUs in the base year of 2017,
18 mainly LSFO. Each subsequent year the maximum decreases by 2,400,000 BTUs, until
19 the BTU total reaches zero, which will happen in 2042.

20 In any year, the application of the ECAC (without a heat rate adjustment)
21 proceeds as normal with HECO's rates moving up and down with changes in fuel costs.
22 If the cumulative BTUs processed through the ECAC in that year is less than the

1 applicable maximum, the ECAC is calculated and applied to rates as it is today. When
2 and if the cumulative total exceeds the applicable maximum in any year, the operation of
3 the ECAC ceases in that month and rates return to a default rate for the balance of the
4 year. Thereafter, the utility is at risk for movements in costs (up or down) for the balance
5 of the year. The recommended option for the default rate is the lesser of a predetermined
6 value established at the beginning of the year or the rate in effect when the ECAC is
7 suspended.

8 Obviously, if HECO follows through on its PSIP commitment to achieve 100%
9 renewables by 2045, this modification will likely not affect cost recovery through the
10 ECAC.

11 The following table summarizes the three basic options and two combination
12 options:

Potential Modifications to the ECAC Mechanism

Option A: Split recovery of cost changes (up and down) between the utility and customers. *Example:* utility passes on 90% of cost increases and decreases. Customers pay less on cost increases, receive less on cost decreases.

Option B: Limit cost recovery in a month to cost increases or decreases outside a “deadband” that can be a percentage or absolute value. A utility receives full recovery of costs outside the deadband. *Example:* the utility absorbs cost increases or decreases that are smaller than a fixed absolute or percentage level.

Option C: ECAC applies normally for fuel costs as long as aggregate MBtu is below an annual ceiling that declines over time. When the aggregate MBtu exceed ceiling ECAC ceases to function for the balance of the year.

Combinations:

Option A+B: (Used for Puget Sound Electric) On an *annual* basis utility absorbs cost changes (up and down) outside a deadband, and shares those costs with customers outside the deadband. *Example:* at the end of the year, revenues are adjusted so that 100% of aggregate cost changes within the deadband are absorbed by the utility. Larger aggregate changes are split 50%/50% between customers and the utility. There are two additional “sharing” bands. Also, for an initial four-year period, the total cost or benefit to the utility was capped at \$40M, beyond which the cost/benefit was split 99% to customers and 1% to the utility.

Option A+C: (recommended by Blue Planet) Utility rates change by a percentage of the indicated increase or decrease in costs in a month, provided that the aggregate MBtu is below an annual cap. *Illustrative example:* Utility raises or lowers rates by 90% of indicated cost change, subject to a ceiling on aggregate MBtus. Illustrative ceiling: 57,000,000 MBtus in 2018; declining by 2,400,000 MBtu annually thereafter. Here, as well, the total cost or benefit to the utility could be capped at a certain amount.

NOTE: The numbers in these examples are *only illustrative*. The Commission would set actual parameters following a hearing on implementation.

- 1 **Q.** WHAT IS HECO’S ATTITUDE TOWARD AN ECAC MECHANISM THAT SHARES THE RISK,
2 AND WHAT IS YOUR RESPONSE?
- 3 A. In response to the discussion of ECAC changes in the Decoupling Docket, the HECO
4 Companies commissioned NERA to produce a “supplement” to its original ECAC report
5 that the HECO Companies have used in their rate cases. *See* NERA, ECAC Cost
6 Sharing: A Supplement to NERA’s Report on Power Cost Adjustments and Act 162

1 Compliance (September 2014) (“NERA supplement”). The HECO Companies submitted
2 the NERA supplement to support its position in the Decoupling Docket opposing any
3 change to the ECAC that would provide any sharing of costs and risks between the utility
4 and its customers. HECO also submitted the NERA supplement in this case in HECO-
5 3014, beginning at page 65.

6 According to NERA, the “suggestions that the Companies do not face proper
7 incentives to control costs” is “without foundation” for two main reasons: the “presence
8 of regulatory oversight” for fuel contracts, and the prospect of “customer bypass” in
9 response to high rates. NERA Supplement at 3. The NERA supplement also emphasized
10 that fuel cost pass-through is “critical” from the utility’s perspective to “[r]educe
11 volatility of utility earnings,” “[p]rovide the utility with a reasonable opportunity” for
12 cost recovery, “[l]ower the utility’s cost of capital” and “help maintain the utility’s credit
13 rating,” and “[m]aintain the Companies’ liquidity.” *Id.* at 15-16, 21. In a somewhat
14 paternalistic twist, the NERA supplement claimed that “such sharing [of risk] is more
15 likely to harm than to help customers.”

16 While this may be a predictable response from the perspective of a utility that
17 enjoys a full, automatic pass-through of fuel costs and immunity from any price volatility
18 impacts and risks, these arguments overstate the facts. The presence of regulatory
19 oversight of fuel costs is a limited constraint and deterrent at best; the HECO Companies
20 have not pointed to any instance where fuel costs have been disallowed after-the-fact. As
21 for the pressure of customer bypass providing sufficient incentive to control costs, this
22 would appear to run contrary to the central thesis of the Commission’s Inclinations and
23 other related orders, which have repeatedly criticized the HECO Companies for lacking a

1 “long-term, customer focused business strategy” and “sustainable business model.”
2 Commission’s Inclinations at 1-2. Indeed, the impetus for the Commission initiating the
3 Decoupling Docket was the Commission’s concerns that the Companies are “not subject
4 to a broad category of risks that might otherwise serve to incentivize diligent control of
5 company expenses” and “do not, by any discernable indications, appear financial
6 compelled to implement corresponding decreases in utility expenses to the extent that
7 would occur with declining net revenues,” and that the cost recovery mechanisms
8 “insulate the utility from immediate financial consequences of these trends to the extent
9 that appropriate adjustments to budgets and strategic plans are delayed or deferred to the
10 ultimate detriment of the utilities’ customers.” Order No. 31289, filed on May 31, 2013
11 in Docket No. 2013-0141, at 14, 17.

12 These repeated admonitions by the Commission also contradict the NERA
13 supplement’s mindset that “what’s best for the utility is best for its customers.” In
14 focusing overwhelmingly or exclusively on the utility’s interests in preserving a full pass-
15 through of fuel costs, the NERA supplement focuses on only half of the ECAC’s
16 purposes mandated in HRS § 269-16(g) (Act 162), which address the utility perspective.
17 The statute, and the interests of customers and the public, require a better and more
18 holistic balance.

19 Finally, I note that the NERA supplement asserts that “[t]he ECAC is neutral with
20 respect to intermediate and longer run strategies and actions” concerning fossil fuel
21 generation. *Id.* at 26. Yet, in an apparent logical inconsistency, the NERA supplement
22 goes on to argue that “[t]he absence of an ECAC or a significant change to the degree of
23 ECAC pass-through or deadbands may well render it too risky for the Companies to

1 maintain oil fired generation when economic; it could well encourage the Companies to
2 move away from oil even if it were not in the customer's best interests in order to reduce
3 financial risks." *Id.* at 26-27. The latter argument is more in line with the point I
4 established earlier, viz., that along the lines of the adage that "all regulation is incentive
5 regulation," the ECAC does in fact pose incentives: a disincentive against efficiency,
6 cost control, and renewable energy; and an incentive in favor of fossil fuels and all its
7 associated economic, social, environmental, and climate costs and risks.

8 **Q. WHAT IS YOUR RECOMMENDATION ABOUT THIS RISK-SHARING DESIGN ASPECT OF THE**
9 **ECAC?**

10 A. I recommend that the Commission adopt modifications to the ECAC for fossil fuels
11 represented by **Options A and C.**

12 As discussed in the illustrative example above, the revised ECAC would pass
13 through to customers 90% of the increases or decreases calculated under the ECAC using
14 the current method of calculation if the year-to-date aggregate MBtus addressed by the
15 ECAC is less than a ceiling amount for that year. The 90/10 sharing would give the
16 utility some "skin in the game."

17 If the aggregate MBtus level reaches the annual ceiling, the ECAC ceases to
18 function for the balance of the year. Rates after that month return to a pre-determined
19 baseline value, or the last effective ECAC value, whichever is lower. The effect of the
20 declining ceiling on the amount of energy addressed by the ECAC is to provide HECO
21 with an additional, longer-term incentive to replace its fossil fuel generation with
22 renewable power sources.

Moreover, to address the utility's concern about the financial impacts to the utility of severe swings in fuel prices and maintain a balance with the ECAC's purposes under HRS § 269-16(g) of preserving the utility's financial integrity and minimizing the need to apply for frequent rate cases, the Commission could limit the total annual cost and risk exposure (and benefit opportunity) of fuel price changes to a certain amount. Such a cap could apply on an initial, interim basis, as in the Washington example, and could be adjusted based on experience or designated to sunset after a specified period. For purposes of discussion, a reasonable starting level for such a cap for HECO could be \$10 million per year, which is about 1% on ROE.

Q. SHOULD THE COMMISSION BE CONCERNED ABOUT ITS AUTHORITY TO MODIFY THE ECAC AS YOU HAVE SUGGESTED?

A. No. The Commission should not be concerned about its authority to adopt these modifications to the ECAC. Obviously, it is discretionary with the Commission whether to use a mechanism such as the ECAC at all. As employed now, the ECAC passes through 100% of the variation in costs. We could term that the 100%/0% case. Eliminating the ECAC entirely would require the utility to absorb all the variation in fuel costs until the next rate case. This is the 0%/100% case. All the options I've discussed above fall between these two cases. Further, HRS § 269-16(g) requires the Commission to approve an ECAC with certain properties, all of which are addressed in my recommendation. The statute also grants the Commission "discretion" to balance those enumerated purposes; again my recommendation falls well within such allowable discretion. As a former commissioner, I believe it's clear that the Commission has the necessary authority to implement the changes I've suggested.

1 In contrast, the ECAC as currently formulated ignores HRS § 269-16(g)'s first
2 two purposes of "[f]airly shar[ing] the risk of fuel cost changes between the public utility
3 and its customers" and "provid[ing] the public utility with sufficient incentive to
4 reasonably manage or lower its fuel costs and encourage greater use of renewable
5 energy." It is unclear whether the statute would allow any of its purposes to be simply
6 disregarded or overridden (as opposed to balanced to some degree), or stated another
7 way, whether the "discretion" afforded in the statute includes the ability effectively to
8 nullify certain provisions.

9 Moreover, to the extent that HECO may argue that my recommended ECAC
10 changes cannot or should not be considered in this rate case, such a position would
11 directly contradict what the HECO Companies stated in the Decoupling Docket. In
12 response to proposals in that docket for risk-sharing under the ECAC similar to those that
13 Blue Planet is again recommending here, the HECO Companies insisted that "major
14 changes to the ECAC (such as partial pass-through proposals, and proposals to 'phase
15 out' the ECAC) generally *are and should be considered in rate case proceedings*, where
16 the ramifications of the proposed changes can be fully considered and taken into
17 account." HECO Companies' Reply Brief with respect to Schedule B Issues, filed on
18 June 14, 2015 in Docket No. 2013-0141, at 11 (emphasis added). In its application for
19 this rate case, HECO included only limited proposed changes to the ECAC related to the
20 heat rate mechanism and certain measures related to "transparency" of its economic
21 dispatch process. HECO failed to mention other proposals under discussion and also
22 omitted the "fuel cost incentive mechanism" proposal that the HECO Companies had
23 developed and offered in the course of the Decoupling Docket discussions. *See* HECO

1 Companies' Opening Brief with respect to Schedule B Issues, filed on June 1, 2015 in
2 Docket No. 2013-0141, at 69-71. The HECO Companies should not be able to dictate the
3 scope of this rate case, when they have admitted that this proceeding is a proper place for
4 considering Blue Planet's recommended ECAC changes, and given that the Commission
5 bears the authority and responsibility to ensure just and reasonable rates and conduct its
6 proceedings for benefit of the public interest. The Commission should reject any attempt
7 by HECO to leave Blue Planet, customers, and the public in a "Catch-22" bind where
8 meaningful ECAC reform is continually and indefinitely avoided.

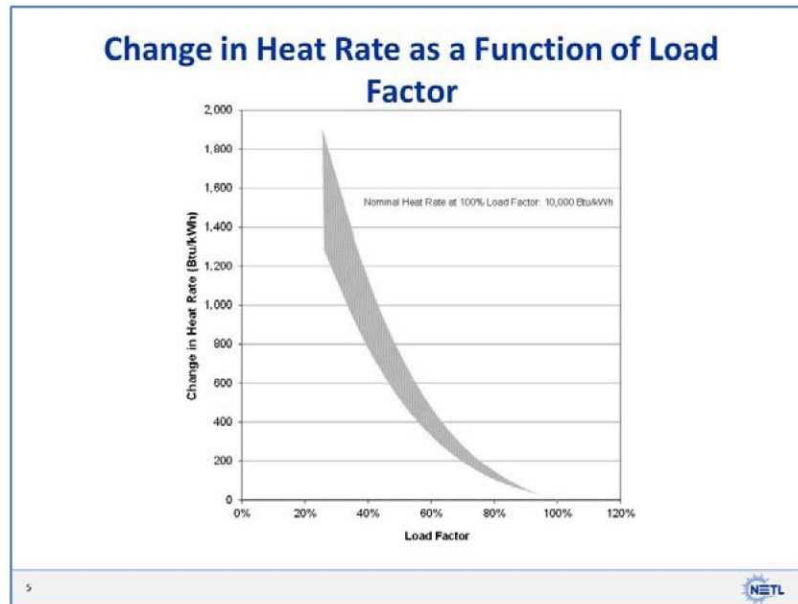
9 **Q. PLEASE RETURN TO THE DISCUSSION OF THE HEAT RATE ADJUSTMENT IN THE ECAC.**

10 A. Across the nation, the operation of the grid is changing dramatically. Fossil generating
11 plants are now prized for their flexibility, the ability to ramp production up and down to
12 balance a grid with many variable resources and loads. Of course, ramping production up
13 and down will almost always increase the heat rate of a plant as it will be operated at a
14 different level than its optimal design rating. Stopping and restarting a fossil plant can
15 also be quite costly to the heat rate; similarly, ramping can increase the cost of operation
16 and maintenance.

17 This means that, when fossil plants are called on to flex in response to the
18 conditions of the modern grid, utilities are faced with a complex problem: optimizing
19 costs across the generation portfolio, mixing low-cost renewable sources with higher-cost
20 fossil resources. Simply put, reducing the total cost of generation is no longer easily
21 measured by the load factor of baseload power plants. While the heat rate adjustment in

the ECAC was perhaps well-justified in an earlier era, today it may be operating at cross-purposes.

The graphic below from the National Energy Technology Laboratory shows the relationship between load factor and heat rate for coal-fired steam plants. As can be seen, reducing the load factor from 95% to 50% increases the heat rate by about 10%. This is a generic graph – applicable to coal plants with a heat rate of about 10,000 BTU/kwh. A similar curve would be expected to apply to the Low Sulphur Fuel Oil plants on the HECO system.



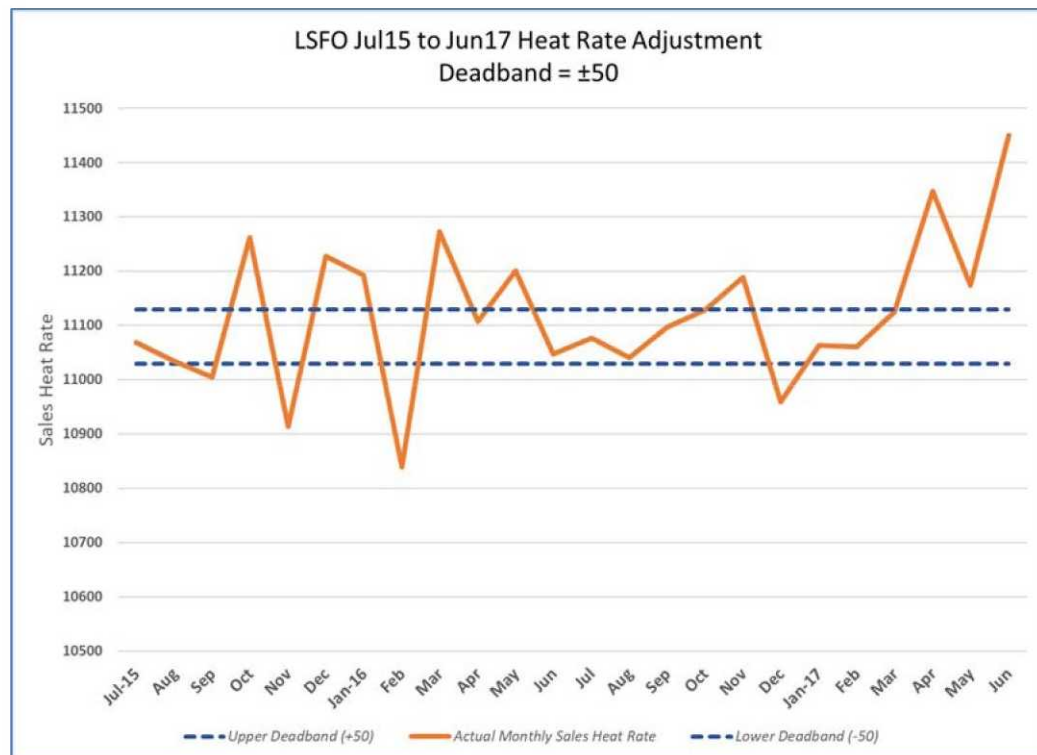
This notion is also supported by the discussion in HECO-216 in this case:

Michael DeCaprio explains in HECO T-9 and HECO-917 that improvements to generating units have been made and are being made to allow enhanced low load operation and cycling, in order to allow for the integration of more, variable renewable energy. For example, Power Supply has done work and modified procedures allowing improved tumdown on reheat units Kahe 1, Kahe 2, Kahe 3, Kahe 4, Waiau 7, and Waiau 8. This turndown allows the units to operate at 5MW, which is close to near zero net to system. Heat rate, however, is negatively affected when reheat units are operated at low loads. For example, small reheat

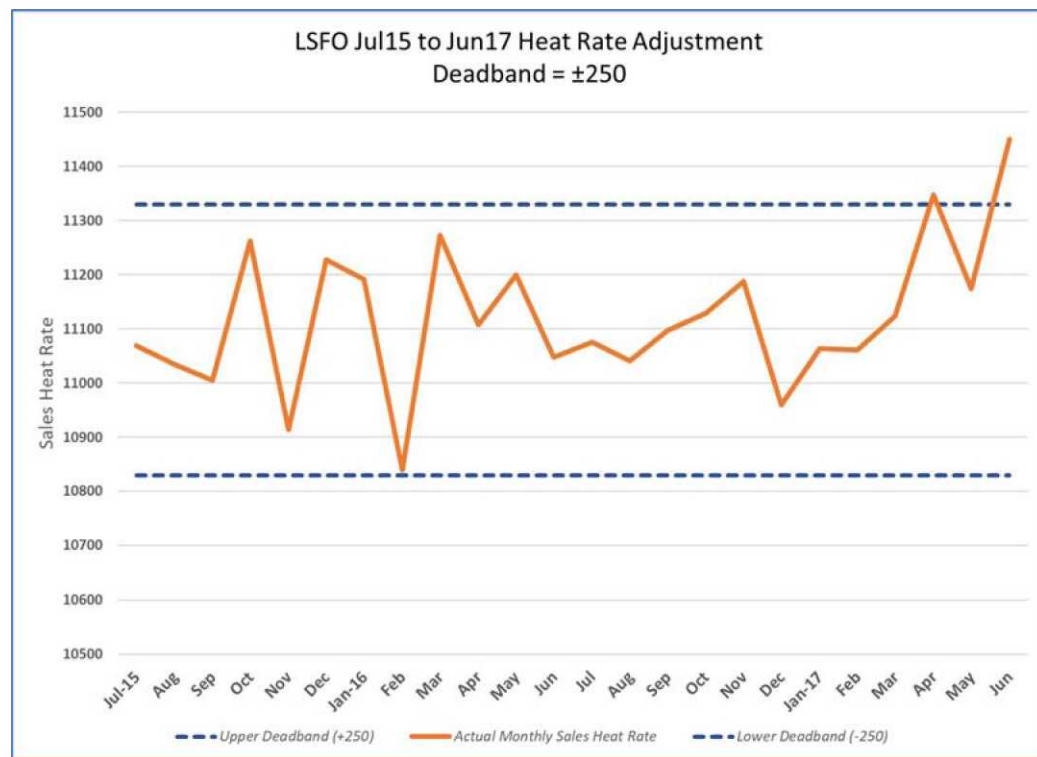
unit heat rate is generally between 10,000 Btu/Kwh and 11,000 Btu/Kwh during normal dispatchable loads. With enhanced low load operation heat rate can approach 20,000 Btu/Kwh. The alternative to the low load operation is cycling. Cycling involves increases to heat rate as well.

The HECO Companies appear to recognize the contradiction inherent in the heat rate adjustment as an incentive when the changing grid operations are considered. HECO is proposing to: eliminate diesel and biodiesel fired plants from the heat adjustment calculation; exempt the new Schofield Generating Station from the heat rate analysis; widen the deadbands for Low Sulphur Fuel Oil-fired units; and adopt triggers for resetting the baseline heat rate.

Here is a graphic that shows how the existing ECAC deadband functioned in the 24 months of July 2015 to Jun 2017, using actual sales heat rate and the current deadband of ± 50 units:



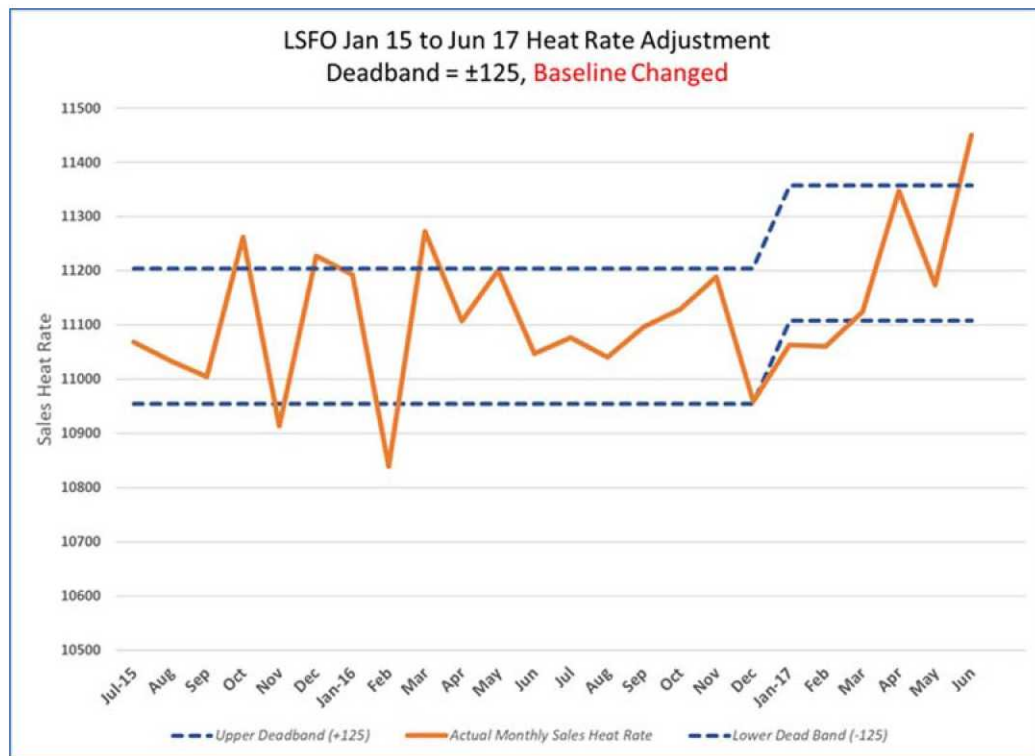
1 In his testimony on behalf of HECO, Mr. Uyeunten reports on the results of his
2 study about the functioning of the ECAC deadband. He concludes that a deadband of
3 ± 250 units would be appropriate, but then reduces his recommendation to a deadband of
4 half that wide: ± 125 units. The following chart shows the impact (back cast onto the
5 2015-2017 data) of the ± 250 -unit deadband.



6 As one can see, the impact of changing the deadband from ± 50 units to ± 250 units
7 is to eliminate any reward or penalty in the ECAC heat rate adjustment over the two-year
8 sample. Changing the deadband from ± 50 units to ± 125 units has a very similar result.

9 HECO also proposes a new baseline for the heat rate calculation, increasing the
10 baseline from 11079 BTU/kwh to 11233 BTU/kwh. The result of the combination of

those changes is shown in the following chart, incorporating the proposed deadband and a new heat rate at the beginning of 2017.



Q. WHAT CONCLUSIONS DO YOU DRAW FROM THIS DISCUSSION OF THE ECAC HEAT RATE ADJUSTMENT?

A. I recommend that the Commission eliminate the heat rate adjustment in the ECAC and pass through the cost of fuel as incurred by the Company, subject only to any other limitations of the ECAC discussed earlier. There are three bases for this conclusion.

First, as discussed previously, the Commission should be concerned that the incentives provided by the heat rate adjustment may collide with Hawai'i's goal of more renewable energy. Simply put, the heat rate adjustment induces HECO to operate plants in a traditional mode that will not necessarily maximize the integration of variable

1 generation. It does not matter that the baseline heat rate is determined by a model
2 redispatch of the system. Once the baseline is established and real-time operations begin,
3 the incentive to the Company is to lower the heat rate of its fossil plants as far below the
4 baseline as possible. Operating a plant more efficiently will move the heat rate slightly,
5 but changing the load factor of the plant will move the monthly heat rate significantly.

6 Second, from the graphics above we can see that HECO's proposal to expand the
7 deadband and adjust the baseline heat rate will nearly eliminate any adjustments to the
8 revenues passed through the ECAC. Subsequent changes in the baseline will maintain
9 that situation. The proposed deadband of ± 125 is even tighter than HECO thinks it can
10 justify. The Company observes that there are many factors affecting the swings in
11 monthly heat rate and is acting (rationally) to limit the impact of the adjustment.

12 If the Commission adopts the HECO proposal, the monthly heat rate calculation
13 will not affect customer rates in any material way. Instead of repeating this calculation
14 each month with the result being near zero, the Commission should drop the mechanism
15 and, if it wishes, require the Company to report significant changes in the heat rate and
16 explain to the Commission staff the reasons behind those changes.

17 Third, it is difficult to say exactly what the Company is being incentivized to do.
18 The wide swings in the monthly heat rate (relative to the baseline) belie any explanation
19 that a strategy is at work; the gyrating data show clearly there is no trend. It is much
20 more likely that the swings are due to stochastic factors like load requirements,
21 maintenance schedules, weather, renewable output, etc., and that the results are similarly
22 random moves around some mean.

1 **Q.** **DOES THIS CONCLUDE YOUR TESTIMONY AT THIS TIME?**

2 **A.** Yes.

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Employment History

2011-present Principal, Public Policy Consulting

Following my four-year term on the Colorado Public Utilities Commission, I resumed my consulting practice in energy policy and regulation. My focus is on climate, clean tech, regulatory reform, utility business models, integrated resource planning and smart grid.

Current and recent clients include Millennium Challenge Corporation, National Renewable Energy Laboratory, Vote Solar, Hewlett Foundation, Climate Policy Initiative, Steffes Corporation, Posigen, Vivint Solar, Tendril Networks, Dow Solar, Lawrence Berkeley National Laboratory, Ceres, the Energy Regulatory Commission of Mexico, the U.S. Department of Energy, Environmental Defense Fund, Earthjustice, Blue Planet Foundation, the Future of Privacy Forum, American Efficient, and Conservation Colorado, among others.

International Engagements

In recent years, I have had assignments in energy policy and regulation in several foreign countries, including Jordan, Malawi, Mexico, Nepal, Sierra Leone, and Tanzania. The activities include developing policy and regulatory roadmaps (Mexico, Nepal), reviewing and drafting legislation (Nepal, Tanzania), advising on electric market structure (Nepal, Malawi) hosting a technical conference (Mexico), designing regulatory agencies (Sierra Leone, Nepal, Mexico), advising on natural gas regulation (Tanzania) and developing Smart Grid policy (Mexico).

2013 Nominee, Federal Energy Regulatory Commission

I was nominated by President Obama on June 27, 2013 to serve on the Federal Energy Regulatory Commission and, upon confirmation, to be designated as Chairman. My nomination was vigorously opposed by the coal industry and conservative political groups, who argued that I would be too friendly to low-carbon resources like renewable energy and energy efficiency. Following a confirmation hearing, it appeared unlikely that my nomination would be reported favorably by the Senate Energy and Natural Resources Committee. I therefore asked that my name be withdrawn from further consideration.

2011-2013 Senior Policy Advisor, Center for the New Energy Economy

The Center for the New Energy Economy (CNEE) at Colorado State University is headed by former Colorado Governor Bill Ritter, Jr. The Center provides policy makers, governors,

planners and other decision makers with a road map to accelerate the nationwide development of a New Energy Economy.

2007-2011 Chairman, Colorado Public Utilities Commission

I was appointed by Governor Bill Ritter, Jr. in January 2007. As Chairman, I helped implement the Governor's and Legislature's vision of Colorado's New Energy Economy, implementing the state's 30% Renewable Energy Portfolio Standard, fulfilling the Commission's role in the Governor's Climate Action Plan, streamlining telecommunications regulation, promoting broadband telecommunications investment and improving the operation of the Commission.

Here are some major accomplishments during my term on the Commission:

- **Implementing the Clean Air-Clean Jobs Act (2010).** Following passage of this new law in 2010, the Commission worked under a very compressed time schedule to consider proposals by XcelEnergy and Black Hills Energy to reduce pollutants from their coal fired generation plants. The contentious Xcel proceeding involves thirty-four legal parties, testimony from sixty-one witnesses and the consideration of more than a dozen contending compliance plans. The case has required the close cooperation between the Commission and the Department of Public Health and Environment.
- **Implementing dozens of new energy, transportation and telecommunications laws.** In each legislative session during the term of Governor Ritter, the general assembly passed numerous utility-related laws. Many of these new laws require the Commission to adopt rules, compile reports, or conduct hearings. Rarely in Colorado history has there been this much activity required of the Commission.
- **Modifying and approving the electric resource plan of XcelEnergy (2009).** After extensive hearings, the Commission approved a plan that includes large amounts of new wind capacity, the early closure of two coal power plants to reduce carbon and other emissions, the acquisition of 200-600 megawatts of solar thermal capacity, and substantial amounts of new energy efficiency savings. The target portfolio will reduce CO₂ emissions per megawatt-hour by 22% from current levels by 2017. The Commission decision requires competitive acquisition for new resources.
- **Adopting new, aggressive energy efficiency requirements (2008)** for Colorado gas and electric utilities. The Commission's requirements for electric utilities go well beyond the statutory minimum levels enacted in 2007. The Commission's policies also provide for rapid cost recovery of energy efficiency spending and bonus incentives for superior performance for the utilities.
- **Rewriting the Commission's electric resource planning rules (2007)** to require full consideration of future costs for carbon emissions, new clean energy resources and environmental and economic externalities. Retained and refined the requirements for competitive acquisition of new resources.
- **Improving communications with stakeholders.** I successfully sought legislation to modify the Commission's enabling statute, allowing the use of a "permit-but-disclose"

communications process similar to the one employed successfully by the FCC and the FERC. The result has been much greater exposure of the Commissioners and staff (outside the hearing process) to the thinking of consumers, utilities, environmental advocates, large customers, advocates for new technologies, etc.

- **Organizing meetings of Western state regulators on regional transmission issues.** We discussed coordination in our efforts to add transmission capacity, especially to renewable energy zones. In future meetings we will discuss a goal of eliminating “pancaked” transmission pricing in the intermountain west.
- **Conducting hearings in eight towns around the state** on a “road trip” to collect consumer opinions about energy rates, distributed generation, the future of the energy sectors, and support for moving toward a more environmentally-sensitive utility industry.
- **Reorganizing the PUC’s staff** to create a Research and Emerging Issues section. As chairman, I worked to improve deployment of the agency’s modest staff so that the Commissioners could stay apprised of new technology and policy alternatives and be able to investigate and implement new regulatory approaches.
- **Reaching out to consumers and interest groups.** I frequently speak at meetings of consumer organizations, environmental groups, business and professional associations, legal seminars, etc. The two-way-street communications improves my understanding and conveys to the public the immense challenges we face in energy policy with climate change.

1995-2006 President, Public Policy Consulting

Consultant, specializing in energy and telecommunications regulatory policy issues.

Assignments include strategic counsel to clients and research and testimony before regulatory and legislative bodies. In addition, I produced several research reports about the impact on rates of adding significant amounts of wind and solar capacity to utility systems. These reports are listed below.

I had a wide range of clients, including: consumer advocate offices, rural electric utilities, senior citizen advocacy groups, environmental groups, industrial electric users, homebuilders, building managers, telecommunications resellers, incumbent local exchange companies, low-income advocacy organizations, and municipal utilities. I testified as an expert witness before regulatory commissions in twelve states.

1996-2003 President and Policy Director, Competition Policy Institute

Competition Policy Institute was an independent non-profit organization that advocated for state and federal policies to bring competition to energy and telecommunications markets in ways that benefit consumers. Duties included: determining the organization’s policy position on a wide range of telecommunications and energy issues; conducted research, produced policy papers, presented testimony in regulatory and legislative forums, hosted educational symposia for state regulators and state legislators.

1984-1995 Director, Colorado Office of Consumer Counsel

Director of Colorado's first state-funded utility consumer advocate office. By statute, the OCC represents residential, small business and agricultural utility consumers before state and federal regulatory agencies. The office was a party to more than two hundred legal cases before the Colorado Public Utilities Commission, the Federal Communications Commission, the Federal Energy Regulatory Commission and the courts.

Managed a staff of eleven, including attorneys, economists, and rate analysts who conduct economic, financial and engineering research in public utility matters. Testified as an expert witness on subjects of utility rates and regulation. Negotiated rate settlement agreements with utility companies. Regularly testified before the Colorado general assembly and spoke to professional business and consumer organizations on utility rate matters. Consulted with advisory board of consumer leaders from around the state.

Held leadership roles in National Association of State Utility Consumer Advocates. Member of high-level advisory boards to Federal Communications Commission (Network Reliability Council and North American Numbering Council) and Environmental Protection Agency (Acid Rain Advisory Council). Frequent witness before congressional committees and invited speaker before national industry and regulatory forums.

1977-1984 Consulting Utility Rate Analyst

Represented clients in public utility rate cases and testified as an expert witness in utility cases before regulatory commissions in Utah, Wyoming, Colorado and South Dakota. Clients included state and local governments, low income advocacy groups, irrigation farmers and consumer groups. Testimony spanned topics of telephone rate design, electric cost-of-service studies, avoided cost valuation of nuclear generation, electric rate design for irrigation customers and municipal water rate design.

1975-1984 Instructor in Mathematics

Taught mathematics at the University of Colorado, Denver and Boulder campuses. Nominated three times for outstanding part-time faculty member.

1971-1974 Manager, Blue Cross and Blue Shield

Managed major medical claims processing department. Responsibilities included budgets, hiring, training, managing supervisors, and coordinating with medical peer review committee.

Other Business Interests

1994-2011 Managing Partner, Trail Ridge Winery

Managing Partner and Secretary/Treasurer of Trail Ridge Winery. Trail Ridge Winery was located in Loveland, Colorado, and produced a variety of award-winning wines from Colorado-

grown grapes.

Education

M.A. (Mathematics) 1977. University of Colorado. Course requirements met for Ph.D.

Graduate courses toward M.A. in Economics 1981-1984. University of Colorado. Twenty-seven hours including Economics of Regulated Industries, Natural Resource Economics, Econometrics.

B.A. with Honors (Philosophy) 1971. St. Louis University.

CERTIFICATE OF SERVICE

I hereby certify that on the following date a copy of the foregoing document was
duly served upon the following parties by U.S. Mail and Electronic Mail, as follows:

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